

CLAIMS

What is claimed is:

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1. A cable modem capable of reducing noise leakage on the upstream channel in a cable plant comprising:
- an upstream transmitter having a control line on which the upstream transmitter can emit a control signal;
- a switch component capable of being enabled and disabled by the control signal on the control line, such that the control signal from the upstream transmitter to the switch component enables the switch component
- 10 thereby allowing a data signal to be transmitted on an upstream channel; and
- an amplifier for amplifying the data signal from the upstream transmitter before being transmitted on the upstream channel.
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2. A cable modem as recited in claim 1 wherein the switch component includes a plurality of switches.
3. A cable modem as recited in claim 2 wherein the plurality of switches includes a first switch associated with transmission of the data signal.
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4. A cable modem as recited in claim 2 wherein the plurality of switches includes a second switch associated with termination of the cable plant.
5. A cable modem as recited in claim 4 wherein the second switch is a shunt switch attached to a resistor.
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6. A cable modem as recited in claim 1 wherein the switch component is contained in the amplifier.
7. A cable modem as recited in claim 6 wherein the amplifier is a
- 30 variable amplifier.

8. \ A cable modem as recited in claim 1 wherein the switch component is not contained in any other component in the cable modem.

5 9. A cable modem as recited in claim 1 wherein the switch component is coupled by a data bus to a duplex filter.

10. A method of reducing noise leakage from a cable modem onto a cable plant, the method comprising:

10 activating a switch component in the cable modem when the upstream transmitter is ready to transmit a data signal upstream;
transmitting a data signal on the upstream channel; and
deactivating the switch component after the data signal has been transmitted on the upstream channel thereby reducing noise leakage when the
15 cable modem is not actively transmitting and terminating noise from the cable plant when the cable modem is not powered.

11. A method as recited in claim 10 wherein activating a switch component in the cable modem further includes asserting a control line.

12. A method as recited in claim 10 further comprising:
closing a series switch within the switch component thereby allowing a data signal to reach a duplex filter in the cable modem when the cable modem is ready to transmit a data signal on the upstream channel.

13. A method as recited in claim 12 further comprising:
opening a shunt switch within the switch component when the series switch is closed.

14. A method as recited in claim 10 further comprising:

closing a shunt switch within the switch component thereby terminating the cable plant when the cable modem is not transmitting a data signal on the upstream channel.

5 15. A method as recited in claim 14 further comprising:

opening a series switch within the switch component thereby disconnecting a data signal path to a duplex filter when the shunt switch is closed.

10 16. A method as recited in claim 10 further comprising:

determining whether an amplifier in the cable modem can enable at a sufficient speed to not cause data packet collisions; and
activating only the switch component if the amplifier cannot enable at a sufficient speed.

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17. A method as recited in claim 10 further comprising activating a variable amplifier to prepare for transmitting a data signal.

add B2
add C1
add D1